South Fremont/Warm Springs Area Studies

Appendix B:
Transformational Opportunities White Paper

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Table of Contents

List of Tables

List of Figures

I. INTRODUCTION

The New United Motor Manufacturing Inc. (NUMMI) plant, which closed in April 2010, has been operating as an auto manufacturing plant since the early 1960s in the Warm Springs District of Fremont, California. General Motors (GM) first opened the facility as an expansion of a much smaller factory that had been located in Oakland since the 1930s. GM closed the plant in the early 1980s, but it reopened again after two years as NUMMI, which was a joint venture between GM and Toyota. After GM declared bankruptcy in 2009, Toyota declined to keep the plant open, despite much work on the part of the State of California and the City of Fremont to keep it open and NUMMI produced its last car on April 1, 2010. The closure resulted in the loss of 4,700 jobs at the site, and impacted an estimated 300 companies in California representing an estimated 30,000 jobs. Given the major loss to the City, the State, and the U.S. manufacturing base, the NUMMI closure has attracted the attention of all levels of government. To address this challenge, the U.S. Economic Development Administration (EDA) awarded the City of Fremont a $333,000 grant to prepare four studies:

1) Economic and Market Strategic Plan
2) Land Use Alternatives Analysis
3) Infrastructure and Cost Analysis
4) Financial Assessment

The purpose of this White Paper is to inform all four documents to be completed under the EDA grant by framing a discussion of realistic opportunities for redevelopment and reuse in the South Fremont/Warm Springs industrial area. The City of Fremont has defined an approximate 850-acre Study Area which includes, but is not limited to, the 5.5 million-square foot former NUMMI plant. In May 2010, Toyota announced that it was investing $50 million in a start-up electric car company, Tesla Motors, and Tesla announced that it was purchasing the entire NUMMI factory. NUMMI formally vacated the plant in October 2010 and Tesla is now preparing to ramp up operations in the plant. Although at its peak, NUMMI produced over 400,000 cars and light trucks a year, Tesla will initially produce about 20,000 cars annually. However, the company has several joint ventures with other car manufacturers, including Toyota, to produce components for their cars. Over the next five to ten years, Tesla anticipates occupying the entire 5.5 million-square foot factory.

As the City contemplates a set of alternative futures for the study area and develops policies and public investment strategies to support the preferred future, the Consultant Team is seeking to understand the viability of a research, development, and production-based vision, given the opportunities presented by Tesla as a potential anchor use, the new Bay Area Rapid Transit (BART) station at Warm Springs scheduled to open in the area in 2015, and potential UPRR constraints.

This White Paper charts the major changes in the economic scale and focus of industrial production in recent decades in the United States the Bay Area, and Fremont; identifies industrial sectors with promise for the future in Fremont; and summarizes the regional and local context of the Study Area. This White Paper, along with a summary of the Baseline Market Study (now incorporated in the Economic and Market Strategic Plan), was presented to a panel

of industry experts. A list of key questions for discussion was also developed and distributed to the panelists in order to mine the substantial and varied experiences of the panelists and to help the Consulting Team answer the following fundamental questions for the City:

> *Could this existing industrial area on the edge of arguably the most innovative region in the world become a vital zone for 21st Century American industrial production? If so, what would that look like, and what is needed to foster this activity?*

The questions for panelists provided in this chapter were developed based on the supporting background information and analysis provided in this White Paper, the other materials included in this package, associated stakeholder interviews, and prior work in the City of Fremont. In addition to this introductory chapter, the White Paper presents six chapters, including:

- A summary of the expert panel recommendations.
- A brief description of the South Fremont/Warm Springs Study Area.
- Overview of historical industrial production and performance at the national, State, and regional levels.
- Description of key factors that will continue to influence the nature and scale of industrial production in the United States.
- Identification of promising trends and sectors.
- Opportunities for Bay Area/South Fremont industrial expansion.

It is important to note that this White Paper was prepared and the expert panel discussion occurred before the sale of the two large NUMMI-owned parcels north and south of the Tesla Factory to Union Pacific Railroad (UP). As such, it does not emphasize or explore extensive logistic operations. If, in the future, UP develops these parcels for rail uses (e.g., freight railyard), additional analysis on logistic uses should be completed.

Questions for Panel Consideration

The following questions were created with the intention of guiding the panelists in their discussion about the full range of issues under consideration in formulating various land use alternatives for the Study Area. However, the panel discussion was not structured to specifically answer each of these questions individually. Rather, these questions were used to help "spark" discussion among the panelists.

Global Competitiveness for Industrial/Production; Niche for the United States, the Bay Area, and Fremont

1. In your view, will the trends toward declining employment in manufacturing, both from increased productivity and off-shoring, continue at the rates we have seen in the last ten years, or are they likely to level off or reverse? How might these trends contribute to the competition that California faces with other states, or even within California (i.e., competition between northern California vs. southern California vs. Central Valley)?

2. Cost is the critical consideration driving off-shoring of manufacturing employment. What are the most important factors that militate against off-shoring of manufacturing jobs? Are there types of manufacturing jobs with less potential for off-shoring and, if so, what are they?

3. Are there emerging sectors or subsectors where keeping some or all manufacturing in the United States is particularly advantageous? If so, why?

4. To what extent do you think retaining U.S. manufacturing jobs is important to keeping R&D and innovation sectors of industry competitive in the United States?

5. What specifically do you see as Fremont's "niche" within the Bay Area as an employment location that could capitalize both on the Study Area's strength, and the region's economic momentum?

Promising Industries for Fremont

6. In light of the integration of green-tech R&D and manufacturing in the Bay Area, what do you think the prospects are for Fremont to capture more of the R&D components of the industry?

7. Do you think Tesla's long-term commitment to manufacturing in Fremont will attract other green-tech businesses, or businesses from other sectors?

8. Do you think the clustering of green tech businesses in Fremont will help attract additional federal and State subsidies, or make the area less competitive for these funds?

9. How likely do you think it is that AB 32 and other climate change and environmental legislation will spur green tech manufacturing jobs in the United States and the Bay Area?

Market Outlook

10. Given what you've seen with emerging industries both in the Bay Area and/or elsewhere in the United States, how long would you expect it to take for the South Fremont/Warm Springs area to start generating development interest from businesses, and what kind of ramp up

time would you expect to see, especially since we are coming out of such a deep recession? What types of incentives might the City of Fremont provide that would have potential to attract targeted uses over time? How long should the City be prepared to wait to achieve the desired land use mix in the face of more immediate market demands?

Industrial Space Characteristics

11. Recent trends in manufacturing have shown steady increases in value added output, while employment has steadily declined. What are the implications for the kinds of facilities and the amount of building space that will be required for industrial production activities in the future?

12. Do you have any "rules of thumb" about employment densities for the kinds of promising industrial sectors covered in the White Paper, either by square feet per worker, or workers per acre? What kinds of buildings are best suited to accommodate these industries (single-story tilt up, multi-story, some mix of office, production space and/or warehouse, etc.)? What are the physical built environment and infrastructure criteria that the promising industrial sectors are looking for in a site and building(s)?

South Fremont/Warm Springs Site Attributes and Opportunities

13. The South Fremont/Warm Springs Study Area has many potentially valuable attributes including 1) access to a large diverse labor force, 2) BART service, and 3) proximity to existing businesses in innovation clusters including green tech manufacturing, power, water, flat undeveloped land, and rail access. Which of these attributes do you think will be of the most value to "transformational" industries and why?

14. In your experience, what are the potential issues related to land use compatibility between residential development and some of the potential enterprises that could come to the Study Area, including the manufacturing processes associated with such industries as electric car production, solar and/or wind power systems production, biotech, or any other industry that you see as having potential at the site? Would housing in proximity to these facilities be an asset or a liability?

15. To what extent do you think the Warm Springs BART station will help attract TOD opportunities such as residential, retail, office/R&D, or others to the Study Area? Do you see potential for change over time from an industrial base in the Study Area to some other range of uses? If so, should that change occur and how should that change occur?

16. Do you have any insights on how to structure the Plan for the South Fremont area that would allow for both flexibility, but create some "near term" certainty that could attract early users?

Role of Public Policy in Transforming South Fremont/Warm Springs

17. Given the complex factors that drive business location in a globalized economy, what role can local land use policy and economic development strategies play in retaining or recapturing industrial production in the United States and the Bay Area?

18. What, if any, are good models where cities have been able to guide incremental growth in leading edge industries and what lessons do you think are directly transferable to Fremont?

19. Beyond providing traditional local government incentives for private development including zoning, infrastructure improvements, and possible assistance with brownfield remediation, is there a "portfolio" of services or other programmatic activities that the City should be trying to assemble to assist in attracting new industries to the South Fremont/Warm Springs Area?

20. Given that the Bay Area clearly has considerable potential for growth in many key industries, what is the most effective process the City of Fremont can pursue in translating this potential into reality, given that the City only controls zoning and public investments, but no land in the Study Area?

II. EXPERT PANEL SUMMARY AND RECOMMENDATIONS

The purpose of the Expert Panel was to obtain national and regional expert input regarding (1) the future of manufacturing nationally and in the region, (2) emerging industry trends, (3) the major opportunities for reuse and redevelopment of the former NUMMI plant and site, and (4) key policy actions to support a sustainable industrial future in Fremont.

Panel Summary

The panelists selected were from a range of backgrounds including regional and national experts in the fields of economics, international and national trade, manufacturing, workforce development, emerging markets, and emerging industrial trends. Attendees included:

- Ro Khanna—Deputy Assistant Secretary for Domestic Operations, U.S. & Commercial Service, International Trade Administration, U.S. Department of Commerce
- Nancey Green Leigh—Professor, Director of City and Regional Planning Doctoral Program, Georgia Institute of Technology
- Jed Kolko—Associate Director and Research Fellow, Public Policy Institute of California
- Jim Wunderman—President and CEO, Bay Area Council
- Michael Cohen—Partner, Strada Group
- Malcolm Appelbe—International Trade Cost Management, Lam Research

In addition to the questions listed in the Introduction, the panelists were provided with a Baseline Market Study describing the existing conditions, supply and demand of various land uses in the market area for the Study Area. The panelists were also provided with an earlier draft of the information provided in the following sections of this White Paper.

Panel Insights and Recommendations

Panelists were in general agreement that Fremont is well-positioned to compete globally based on the strengths of the Bay Area as well as Fremont's specific strengths. Fremont and the site have several distinct competitive advantages to build on including a diverse and highly educated workforce, a family-friendly community, several existing strong innovation industry clusters and an excellent supplier network, an inventory of existing buildings and vacant land to accommodate a wide range of industry needs, large vacant sites, BART, freeway and rail access, and Tesla.

The Panel believes that Fremont will continue to serve as a key location for "Innovation Industries" because it already plays a key role in the Bay Area economy. In addition, the Bay Area continues to be a global leader in many kinds of industrial activities at the intersection between R&D and production. While labor costs can be a key issue, the Panel felt that Fremont

is not, and has never been, a low-cost production location relative to other places in the United States, nor does it need to be. As long as the focus is on "innovation industries," the advantages of locating in the Bay Area far outweigh the additional costs.

In addition the City is already doing many of the things the Panel suggested including maintaining current and relevant industrial zoning, one-stop permitting, working with PR people to create a "brand" for Fremont emphasizing innovation, working with Ohlone Community College on workforce training issues and meeting with domestic and foreign companies interested in the Study Area.

In terms of common pitfalls and lessons learned from other economic development strategies, the Panel agreed that giving tax incentives to individual businesses did not produce enough of a return. Maintaining revenue is far more important because the City will need a strong fiscal base to provide the high quality services necessary to provide the infrastructure for innovation.

Strategic Guidance

The Panel developed a list of key elements for the Economic and Market Strategic Plan and Land Use Alternatives. The Plan should establish a strong vision for the area as a place where businesses can "Plug In" to an existing district with the right "infrastructure for innovation." Place making will be critical to establishing this area as a 21st century work place. The Study Area should reflect the highest urban design standards for the public realm and will require careful planning to set a model for a high quality planned industrial zone which may include housing. If housing is to be included, it will be necessary to plan for a strong residential neighborhood that can accommodate a range of household types, including families, in a higher-density, mixed use district near BART. In addition, educational institutions that also "foster Innovation"—a technology-based charter high school or a community college level facility with a "tech shop" —are just a couple of examples.

The strategy for this area should be two-pronged. First, create a plan that equally balances entitlement certainty with the option for some land use flexibility, letting the market take its course. Second, pursue specific "Game-Changing" strategies such as:

- Working with BART and the High-Speed Rail Authority to put rail car manufacturing at the site.
- Recruiting Chinese manufacturers looking for American locations to meet "local content" requirements.

The Panel generated a list of key implementation strategies necessary to achieve the vision described above.

- Continue working to establish a redevelopment project area.
- Establish a foreign trade zone within the Study Area.
- Hire a lobbyist to work with the State and federal government on removing long term trade barriers and providing financial support for framework infrastructure.
- Pursue "Game-Changers" but be prepared to "pivot" based on unforeseen opportunities.

- Take a master plan approach to planning the Study Area to implement highest quality planning.

III. Study Area Overview

The South Fremont/Warm Springs Study Area encompasses approximately 850 acres. As **Figure A-1** in **Appendix A** shows, the area outlined in orange is the entire former NUMMI property, which is subdivided into three parcels. At the time this White Paper was published, NUMMI still owned the northern parcel, Parcel 1, and the southern parcel, Parcel 3. The middle parcel, Parcel 2, is now owned by Tesla Motors. When NUMMI was operating the plant, the company was concerned about potential conflicts with housing (and other assembly-type uses), and thus maintained a strict buffer around the facility. This impacted planning for the area around the future BART station as NUMMI did not want any new conflicting land uses in the area. However, Tesla, looking to model its operations after Porsche, is receptive to a variety of adjoining land uses. The main Porsche facility has operated in Stuttgart Germany for 50 years adjacent to a residential neighborhood.

Railroad tracks bisect the Study Area on a north-south axis. To the east of the tracks is a mixed grouping of industrial and R&D buildings. The best access to the site is from Highway 680 to the east, with additional access to Highway 880 to the west and south. **Figure A-2** shows the opportunities and constraints for future industrial development, and **Figure A-3** shows the opportunities and constraints for mixed uses. While there are currently virtually no housing units in the Study Area, there are extensive residential neighborhoods to the southeast and east of the Study Area's boundaries. See **Appendix A** for area and site maps.

IV. INDUSTRIAL PRODUCTION AND PERFORMANCE

Technological advances and automation as well as globalization, off-shoring, and international trade policy have combined to transform the nature and scale of industry in the United States over the last 60 years. Significant declines in the proportion of the U.S. labor force employed in the manufacturing sector have precipitated an ongoing debate about the role of manufacturing in the United States and other advanced western economies. With growing U.S. trade deficits in manufacturing goods since the mid-1990s, driven in large part by trade with China, debates about globalization, fair trade, open markets, and exchange rate policy have also come to the fore.

As recently as 2005 with unemployment below 5 percent, many remained optimistic that the rapid expansion in the service sector could continue to replace the lost manufacturing jobs. The experience of the last several years—the pain and enduring unemployment and underemployment of the Great Recession and its aftermath, the collapse in consumer spending, and the fiscal crises facing State and local governments—are challenging this belief. With off-shoring in the service sector also on the rise, many have started to ask whether a revival in industrial production—"actually making things"—is the only way to: (1) guarantee a continued role for the United States as a major economic power, and (2) generate sufficient jobs for the range of education and skill levels inevitably present in a large economy, recognizing also the broad array of services required to support industrial production.

This is certainly the perspective of the current U.S. administration as it has been of other advanced economies in Europe. As reported by the New York Times: "The Obama administration argues [...] that the United States cannot sustain itself as a global economic power without a thriving manufacturing sector. Too much research and development, too many well-paid jobs and too many exports flow from manufacturing."[1]

National

In the 1950s, the United States produced 45 percent of the manufactured goods and supplied most of the raw materials in the world, supporting an average of nearly 16 million jobs in the manufacturing industry sector during that decade. At that time, the share of U.S. manufacturing jobs peaked at more than 30 percent, but has since declined to just 9.25 percent (in 2009).[2]

The downturn in manufacturing has been deep and broad, and no other sector has lost so much ground relative to the rest of the economy. Manufacturing's share of value added output as a percentage of real gross domestic product peaked at nearly 30 percent in the 1950s, generating an annual average of $720 billion of manufacturing value in the 1950s (in constant 2009

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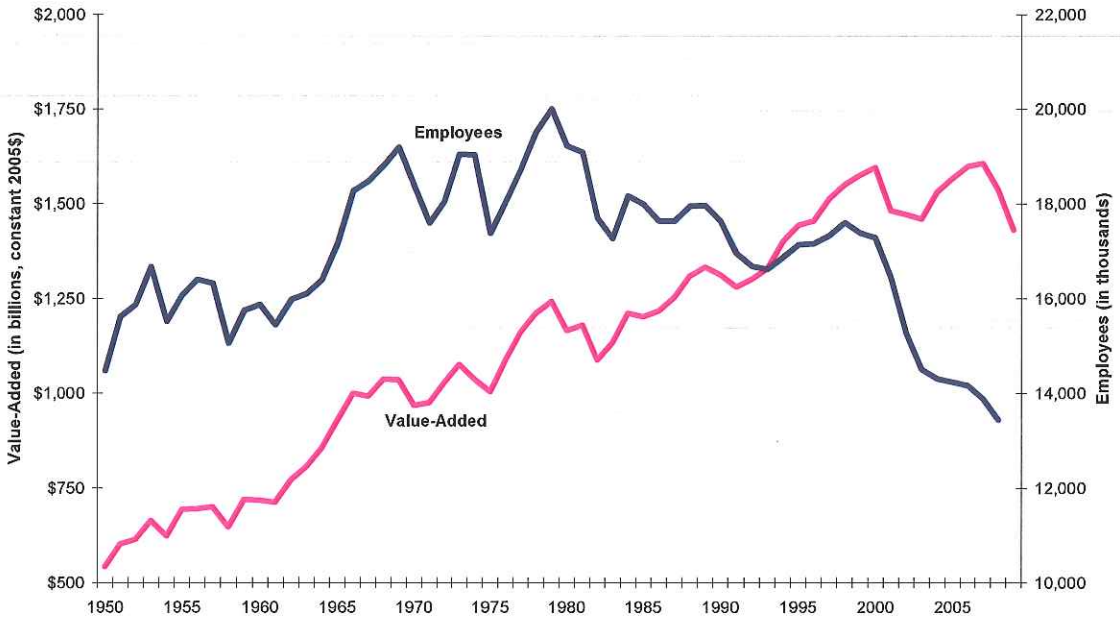
[1] Uchitelle, Louis. Ron Bloom Is Obama's Manufacturing Emissary. The New York Times. September 9, 2011.

[2] Policy Recommendations to Create U.S. Manufacturing Jobs. Silicon Valley Leadership Group. September 2010.

dollars). Although the value added output of the manufacturing sector has since grown to equal an annual average of $1.7 trillion during the past decade, an annual real growth rate of 1.7 percent between 1950 and 2009, the manufacturing sector's share of U.S. gross domestic product declined to just 11 percent in 2009. Other sectors of the economy grew faster with an average annual rate of 3.2 percent in GDP for the whole U.S. economy in constant dollar terms between 1950 and 2010 (see **Figure 1**).

Figure 1: U.S. Manufacturing: Value-Added and Employees



Source: Bureau of Labor Statistics; Bureau of Economic Analysis; Economic & Planning Systems, Inc.

In 2000, the manufacturing sector generated $1.6 trillion in value-added GDP (2005 dollars), about three times more than in 1950 in constant dollar terms, and generated 17.3 million jobs, about 20 percent more than in 1950. Since 2000, manufacturing employment has gone into freefall, while manufacturing value-added has declined by about 10 percent to $1.43 trillion. Between 2000 and 2009, the nation lost more than 30 percent of its manufacturing job base—approximately 5.2 million jobs—with the loss of 2 million of these jobs occurring since the start of the recession in December 2007.[3] **Figures 2** and **3** illustrate the ongoing trend of manufacturing job loss as well as the more variable experience of manufacturing output over the last twenty years. **Tables 1** and **2** present more recent trends in employment and output detail by manufacturing industry subsector (three-digit NAICS code), showing their relative contributions to current U.S. manufacturing output and employment as well as relative levels of growth/decline.

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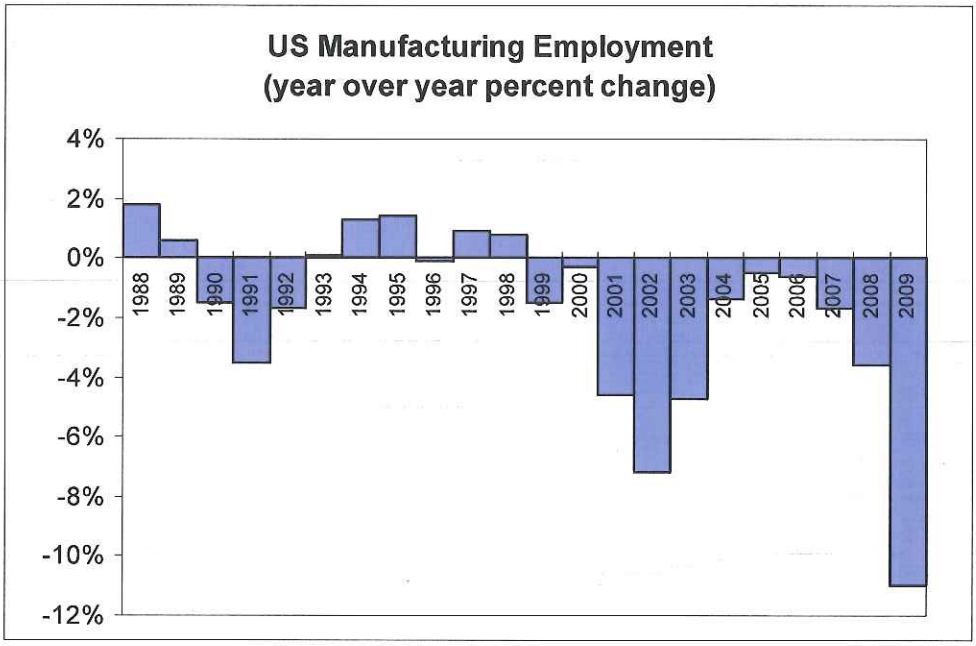
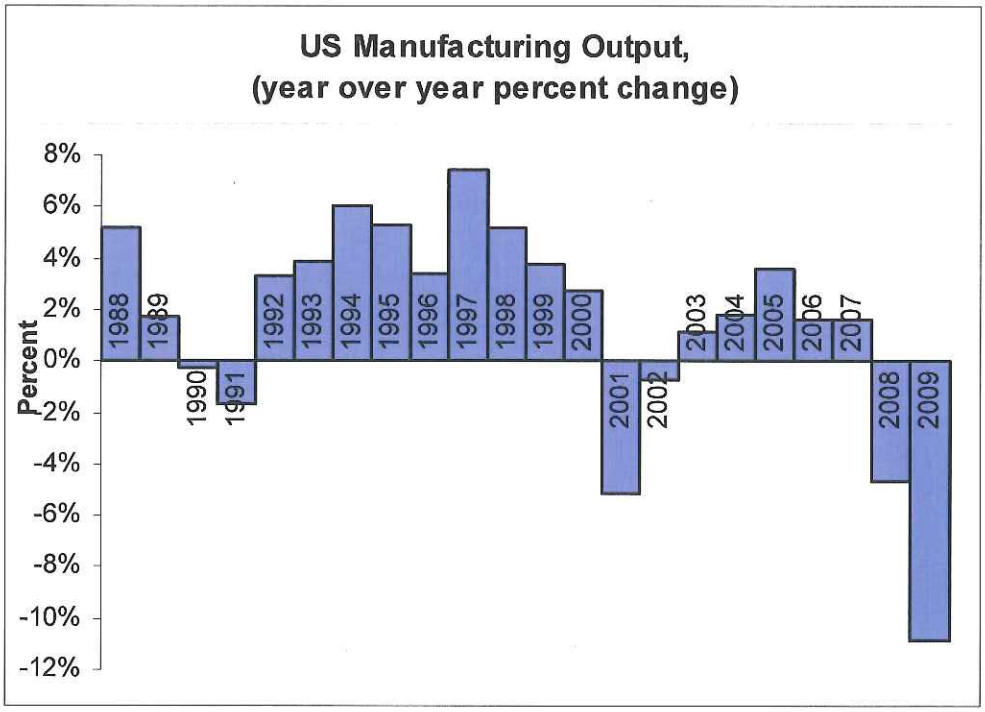
[3] Uchitelle, Louis. Ron Bloom Is Obama's Manufacturing Emissary. The New York Times. September 9, 2010.

Figure 2: U.S. Manufacturing Change in Annual Employment



Source: Bureau of Labor Statistics; Economic & Planning Systems, Inc.

Figure 3: U.S. Manufacturing Change in Annual Output (in nominal dollar terms)



Source: Bureau of Economic Analysis; Economic & Planning Systems, Inc.

Table 1
US Manufacturing Employment
South Fremont/Warm Springs Area Transformational Opportunities; EPS #20050

	Percent of Total Manufacturing Employment (2009)	Rank	Percent Change in Employment (2001 through 2009)	Rank
US Manufacturing				
Food manufacturing	12.3%	1	-6.8%	2
Transportation equipment manufacturing	11.5%	2	-29.7%	9
Fabricated metal product manufacturing	11.1%	3	-21.7%	6
Computer and electronic product manufacturing	9.6%	4	-35.2%	14
Machinery manufacturing	8.6%	5	-25.0%	7
Chemical manufacturing	6.8%	6	-16.1%	4
Plastics and rubber products manufacturing	5.3%	7	-30.1%	11
Miscellaneous manufacturing	4.9%	8	-18.7%	5
Printing and related support activities	4.4%	9	-31.8%	12
Paper manufacturing	3.4%	10	-29.7%	10
Nonmetallic mineral product manufacturing	3.3%	11	-28.2%	8
Furniture and related product manufacturing	3.2%	12	-40.4%	18
Electrical equipment and appliance mfg.	3.1%	13	-32.7%	13
Primary metal manufacturing	3.1%	14	-36.2%	15
Wood product manufacturing	3.0%	15	-37.1%	16
Beverage and tobacco product manufacturing	1.6%	16	-9.8%	3
Apparel manufacturing	1.4%	17	-60.6%	20
Textile product mills	1.1%	18	-38.0%	17
Textile mills	1.0%	19	-62.5%	21
Petroleum and coal products manufacturing	1.0%	20	-5.3%	1
Leather and allied product manufacturing	0.2%	21	-50.8%	19

Source: Bureau of Labor Statistics; Economic & Planning Systems, Inc.

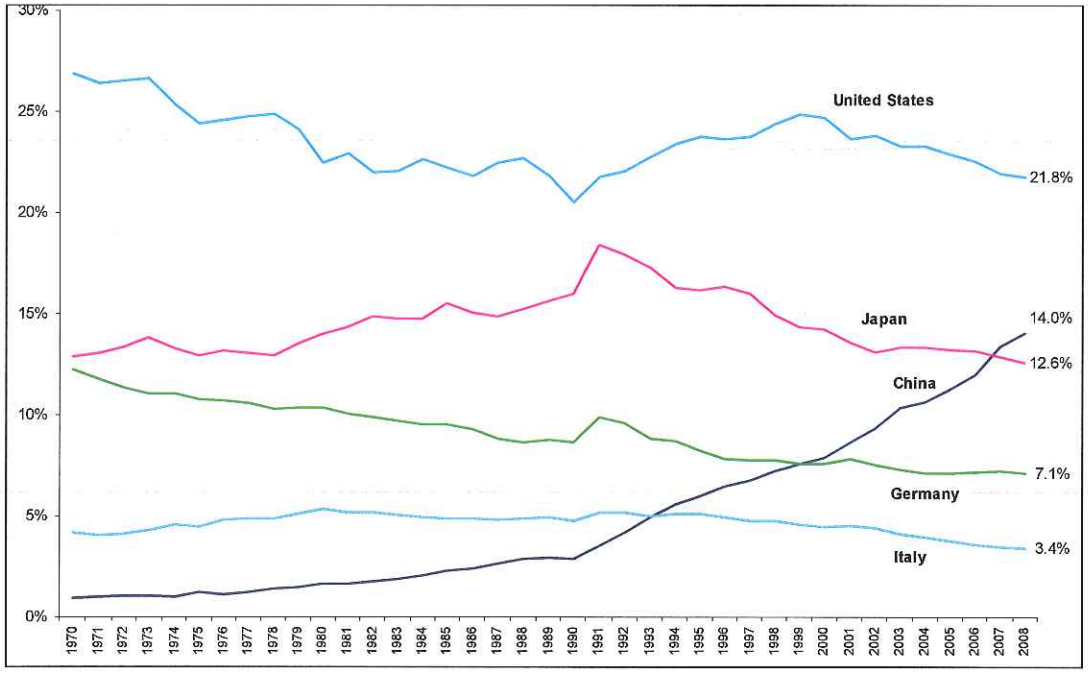
Table 2
US Manufacturing Output
South Fremont/Warm Springs Area Transformational Opportunities; EPS #20050

	Percent of Total Manufacturing Output (2007)	Rank	Percent Change in Output (1998 through 2008)	Rank
US Manufacturing				
Chemical manufacturing	15.4%	1	41.8%	4
Food product manufacturing	10.8%	2	35.8%	5
Computer and electronic product manufacturing	9.0%	3	26.9%	7
Fabricated metal product manufacturing	8.7%	4	20.1%	9
Machinery manufacturing	7.8%	5	9.2%	10
Motor vehicle, body, trailer, and parts manufacturing	6.1%	6	-17.5%	17
Other transportation equipment manufacturing	5.9%	7	60.5%	2
Miscellaneous manufacturing	4.5%	8	58.3%	3
Petroleum and coal products manufacturing	4.4%	9	207.1%	1
Plastics and rubber products manufacturing	4.1%	10	8.8%	11
Primary metal manufacturing	3.9%	11	21.8%	8
Electrical equipment and appliance manufacturing	3.6%	12	32.0%	6
Nonmetallic mineral product manufacturing	3.4%	13	-0.9%	14
Paper manufacturing	3.1%	14	8.7%	12
Printing and related support activities	3.0%	15	-3.9%	16
Furniture and related product manufacturing	2.2%	16	0.2%	13
Wood product manufacturing	1.9%	17	-1.5%	15
Textile and textile product mills	1.2%	18	-40.6%	18
Apparel manufacturing	1.0%	19	-40.7%	19

Source: Bureau of Economic Analysis; Economic & Planning Systems, Inc.

Still, the United States was the world's largest manufacturing economy in 2009, as measured by output, producing 22 percent of global manufacturing output (in constant 2009 dollars)—since 1975, the United States has represented between 20 and 25 percent of global manufacturing output (see **Figure 4**). The type of manufacturing activities that remain in the United States tend to be the most advanced, typically requiring close coordination with engineering and design staff during the production cycle (as discussed below). The U.S. manufacturing sector, today, supports nearly 12 million direct jobs in addition to a broad array of supporting service sector and other jobs.[4] This reflects a modest rebound in employment since the start of 2010 (1.5 percent), primarily concentrated in four industries: automotive, fabricated metals, primary metals, and machinery.[5] The unemployment rate for manufacturing workers dropped to 9.6 percent in September 2010 from 12.1 percent in 2009.

Figure 4: Share of Total Global Output, Leading Manufacturers



Source: United Nations Statistics Division

[4] National Association of Manufacturers. Manufacturing Strategy for Jobs and a Competitive America. June 2009.

[5] Isidore, Chris. Surprise! Blue Collar Jobs Are Coming Back. CNNMoney.com. September 27, 2010.